

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 13.28**WELDING INSPECTION REPORT****Resident Engineer:**Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-006334**Date Inspected:** 17-Apr-2009**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1530**Contractor:** Oregon Iron Works Clackamas, Or.**Location:** Clackamas, OR**CWI Name:** Mike Gregson, Rob Walters**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** Hinge K Pipe Beams**Summary of Items Observed:**

The Quality Assurance Inspector Sean Vance arrived on site at Oregon Iron Works, Inc (OIW) in Clackamas, OR, to randomly observe the in process welding of the Hinge K Pipe Beam assemblies. The QA Inspector arrived on site to randomly observe the OIW Quality Control (QC) Inspectors in process and completed visual and nondestructive testing. Upon the arrival of the QA Inspector the following observations were made:

OIW Fabrication Shop-Bay 3

Hinge-K Pipe Beam Assembly 102A-1: 4/17/09

a111-1 Forging to a110-1 Base Plate

QA Inspector noticed the CJP (AWS D1.5 TC-U9a-S) a111-1 pipe forging to a110-1 base plate, designated as weld joint #W2-12 and W2-13, was complete and 100% ultrasonic weld inspection was performed by OIW QC Inspector Steve Barnett on 4/9/09.

QA Inspector noted that Mr. Steve Barnett had found no rejectable indications per AWS D1.5 Tensile Stress Criteria (Table 6.3) and completed the appropriate OIW Ultrasonic Weld Inspection report.

QA Inspector performed approximately 10% ultrasonic weld inspection on the CJP (AWS D1.5 TC-U9a-S) a111-1 pipe forging to a110-1 base plate, designated as weld joint #W2-12 and W2-13 and found one rejectable indication per AWS D1.5 Tensile Stress Criteria (Table 6.3).

QA Inspector notified Lead QC Inspector Mike Gregson of the rejectable indication and Mr. Mike Gregson verified the rejectable indication was present and concluded with the same results as the QA Inspector. See applicable Ultrasonic Testing Report (TL6027), for additional details.

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QA Inspector notified Lead QA Inspector Joe Adame of the results and Mr. Joe Adame verified the rejectable indication was present and concluded with the same results as the QA Inspector.

Mr. Joe Adame suggested that QC Inspector Steve Barnett verify the rejectable indication was present and compare results with the QA Inspector. Mr. Steve Barnett later arrived for scheduled swing shift and verified the rejectable indication observed and concluded with similar results, (+ 1db) difference in classification of discontinuity rating, but still rejectable.

QA Lead Inspector Joe Adame spoke with QC Manager Tom Tomovick and discussed the weld area to be re-examined by Mr. Steve Barnett and stated that the weld repair to be made could be a non-critical weld repair as long as the repair excavation did not exceed 65% of the weld size. Mr. Joe Adame then suggested to Mr. Tomovick that the applicable ultrasonic testing report should be revised to document this rejectable indication and that a Non-Conformance Report would not be necessary if the proper documentation is submitted. Mr. Tomovick explained that the original QC UT report accepting the weld has been submitted, but OIW would submit a revised UT report rejecting the indication & listing recordables. The revised UT report will supersede the previous UT report submitted for 102a-1.

QC Inspector Steve Barnett explained the area would be re-examined, the applicable ultrasonic testing report would be revised and a photocopy would be provided to QA Inspector once complete.

Hinge-K Pipe Beam Assembly 102A-4: 4/17/09

a111-4 Forging to a110-4 Base Plate

QA Inspector noticed the welding on the CJP (AWS D1.5 TC-U9a-S) a111-4 pipe forging to a110-4 base plate, for pipe beam assembly 102A-4 was complete and was sitting idle, pending 100% final ultrasonic weld inspection.

Hinge-K Pipe Beam Fuse Assembly 120A-3: 4/17/09

a124-12 Half Fuse to a124-10 Half Fuse

QA Inspector randomly witnessed welder #S53, Mr. Jerry Shepherd, perform submerged arc welding (SAW) on CJP (AWS D1.5 B-U3c-S), half fuse pipe assembly, (piece mark identified as a124-12), to half fuse pipe assembly, (piece mark identified as a124-10), in the flat position (1G).

QA Inspector spoke with QC Inspector Mike Gregson and Mr. Gregson explained that the OIW welder #S53, was performing submerged arc welding in accordance with the OIW approved welding procedure specification (WPS 4020).

QA Inspector noticed Mr. Mike Gregson and QC Inspector Rob Walters were present and monitoring in-process welding parameters (amps/volts) and pre-heat temperatures, verifying Mr. Jerry Shepherd was in compliance with the applicable welding procedure specification (WPS 4020).

QA Inspector verified Mr. Jerry Shepherd was currently qualified for this welding process/position and performed a random pre-heat check and recorded temperatures of approximately 350 degrees Fahrenheit, which is in compliance with the OIW welding procedure specification (WPS 4020). See attached picture below.....

Hinge-K Pipe Beam Assembly 102A-3: 4/17/09

a111-3 Forging to a110-3 Base Plate

QA Inspector noticed the welding on the CJP (AWS D1.5 TC-U9a-S) a111-3 pipe forging to a110-3 base plate, for pipe beam assembly 102A-3 was complete and was sitting idle, pending 100% final ultrasonic weld inspection.

Hinge-K Pipe Beam Assembly 102A-2: 4/17/09

a111-2 Forging to a110-2 Base Plate

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QA Inspector noticed the submerged arc welding (SAW) on CJP (AWS D1.5 TC-U9a-S) pipe beam base plate, (piece mark identified as a110-2) to pipe forging, (piece mark identified as a111-2), was complete and this assembly 102A-2 was sitting idle.

QA Inspector spoke with QC Inspector Mike Gregson and Mr. Gregson explained that preliminary ultrasonic weld testing was performed by QC Inspector Rob Walters and no rejectable indications were found.

Mr. Gregson also explained that a final ultrasonic weld inspection would be performed, after a 72 hour time cooling period, which is in accordance with AWS D1.5 Sect. 12.16.4, Cooling Times Prior to Inspection.

Hinge-K Pipe Beam Sub-Assembly a124-4: 4/17/09

b125 Ring Stiffener to a124-4 Half Fuse

QA Inspector randomly witnessed OIW welder #O6, Mr. Tim O'Brian perform submerged arc welding (SAW) on PJP (AWS D1.5 TC-P5-S) internal ring stiffener, (piece mark identified as b125), to half fuse pipe sub-assembly, (piece mark identified as a124-4), in the flat position (1G).

QA Inspector spoke with QC Inspector Mike Gregson and Mr. Gregson explained that the OIW welder #O6, was performing submerged arc welding in accordance with the OIW approved welding procedure specification (WPS 4020).

QA Inspector noticed Mr. Mike Gregson and QC Inspector Rob Walters were present and monitoring in-process welding parameters (amps/volts) and pre-heat temperatures, verifying Mr. Tim O'Brian was in compliance with the applicable welding procedure specification (WPS 4020).

QA Inspector verified Mr. Tim O'Brian was currently qualified for this welding process/position and performed a random pre-heat check and recorded temperatures of approximately 350 degrees Fahrenheit, which is in compliance with the OIW welding procedure specification (WPS 4020).

Hinge-K Pipe Beam Fuse Assembly 120A-2: 4/17/09

a124-3 Half Fuse to a124-11 Half Fuse

QA Inspector noticed the fuse splice (a124-3 to a124-11) was complete and was sitting idle, pending 100% final ultrasonic weld inspection

Material, Equipment, and Labor Tracking

QA Inspector Sean Vance performed a verification of personnel at Oregon Iron Works, Inc. and witnessed 6 OIW production personnel and 2 QC.

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### Summary of Conversations:

As noted above.

### Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mohammad Fatemi (916) 813-3677, who represents the Office of Structural Materials for your project.

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<b>Inspected By:</b>	Vance,Sean	Quality Assurance Inspector
<b>Reviewed By:</b>	Adame,Joe	QA Reviewer

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